DR. GRAY'S REVISION OF THE SPECIES OF ECHINOSPERMUM.—In the recently received "Contributions to North American Botany" by Dr. Gray in Vol. XVII of the Proc. of Am. Acad. of Arts and Sciences, the following corrections are made in the disposition of the species of Echinospermum, as given in Gray's Synoptical Flora of N. A., pp. 188 and 189.

E. virginicum Lehm.
E. pinetorum Greene; a new species trom New Mexico.
E. deflexum Lehm.
E. ursinum Greene; a new species from New Mexico.
E. floribundum Lehm; "the synonym *E. subdecurrens* Parry is to be suppressed, as it belongs to the next."
E. diffusum Lehm; this is not the *E. diffusum* of the Synoptical Flora. (See below).
E. ciliatum Gray; this is the the *Cynoglossum ciliatum* Dougl. of the Syn. Flora. It also includes *C. howardi* Gray.
E. californicum Gray; this includes the large flowered specimens which in the Syn. Flora were described under *E. diffusum*. The true *E. diffusum* is the small-flowered species, specimens of which were mixed up with those of *E. californicum*.

The remaining species were unchanged.

ENTOMOLOGY.[1]

NEW LISTS OF NORTH AMERICAN LEPIDOPTERA.—During the year 1882 three different lists or catalogues of Lepidoptera have been published. The first, issued in January, is "A check-list of the Macrolepidoptera of America, north of Mexico," published by the Brooklyn Entomological Society. In the preface the publication committee modestly disclaims all authority or intention to pass upon the validity of any of the species contained in the list, which is rather offered as filling a long-felt want by lepidopterists, to facilitate the exchange of specimens and the arranging of collections. Some 3204 species are enumerated, the Tortricina and Tineina not included. While by no means perfect, this list has the advantage of representing in most respects the views held by the bulk of lepidopterists. It is arranged on the general plan of Crotch's Check-list of Coleoptera (omitting, however, all synonymical matter), the works of Wm. H. Edwards, Boisduval, Staudinger, Stretch and Packard being followed, and the author of the species instead of that of the more recent generic combination being given. The list has proved very useful to lepidopterists, and will be followed, we hope, with supplements from time to time, or, what were better, new and improved editions.

The second publication we would call attention to, is something more than a list. It is very properly called "A Synonymical Catalogue of the described Tortricidæ of America, north of Mexico," by C. H. Fernald, A.M., professor of natural history in the Maine State College. It was issued by the American Entomological

[1] This department is edited by Professor C. V. RILEY, Washington, D. C., to whom communications, books for notice, etc., should be sent.

Society in July. Working, as did the author, at this single family for many years before issuing the catalogue, this is, as might have been expected from Professor Fernald's well-known caution and ability, a work of exceptional value, and puts the study of the Tortricidæ in this country, at once upon a basis which it never had before. Not only are synonyms given with full references, but also the localities and food-plants, when known, though a number of these last which we have communicated to him are, for some reason, omitted.

We may have occasion to refer to this admirable catalogue in future, more to add some facts from our own experience than to offer any criticisms or suggestions; for the work is so admirable in every respect that it leaves little to be desired. Like every other cataloguer, Professor Fernald has found some difficulty in deciding what to do with many of Hübner's names, most of which, for the good of science, ought to be entirely ignored. Professor Fernald, after fully discussing the matter in his own mind, has decided to adopt the uniform specific termination of *ana*, and not to make it correspond in gender to the generic name. Although we have adopted the opposite course (Trans. St. Louis Ac. Sci., IV, p. 317 ff.) it was rather against our judgment as stated at the time, and we think Professor Fernald has acted wisely.

The third work is entitled a "New Check-list of North American Moths," by Aug. R. Grote, president New York Entomological Club. We wish we could speak as approvingly of this work as of the preceding, a condensed edition of which is included from advanced sheets furnished by Professor Fernald. Mr. Grote's list is more presumptuous than the Brooklyn list. The names are arranged in double column somewhat after the form of Crotch's list, already referred to, but without the advantage in this last of including the authority in parenthesis whenever the species was described under another genus than that with which it is now connected. The species in each family are independently numbered. While the typography and general make-up of Mr. Grote's list are all that could be desired (there is no indication as to publisher), it is marred by the author's accustomed looseness of statement and assertion. Within the space of a single page of the preface, we are treated to rambling thought anent eternities, deities, nature, matter, evolution, the universe, stars and suns, and to other matter in no way germane to a check-list of moths. Asserting on p. 7 his courtesy and fairness toward others, the list ends with a series of notes consisting chiefly of tirades against other entomologists, many of them including statements which are unjust and untrue.

There are a number of errors of commission or omission which it would be tedious in this connection to point out. New genera are made with a few words; some, hitherto abandoned, revived,

and others subdivided, without reason or explanation. There is, in short, too much arbitrary opinion that is not unbiased.

Yet with all these blemishes the list is an improvement on much from the same author that has gone before, and we are glad to note that he has rejected the system of attaching to the species the author who first referred the species to its modern genus —a system adopted and defended by him in a previous list. We also note a modification of his ideas of the value of Hübner's names, as he now unwillingly adopts one that does not rest on "real structural characters." We think that many more, on this basis, will have to be rejected. No uniformity of termination appears either in the family names or in those denoting minor divisions, and both *Noctuæ* and *Noctuidæ* are used in a synonymous way. In the list of catalogues and lists of North American Lepidoptera (p. 66), no mention is made of the excellent one of Bernhard Gerhard (Systematisches Verzeichniss der Macro-lepidoptera von Nord-Amerika, Leipzig, 1878) which was really the first published general list of the Macrolepidoptera of North America, and which, considering that it is by a foreigner by whom some omissions and defects are excusable, has much to commend it. Mr. Grote's list was not printed and issued till August (as acknowledged in a postscript) though on the cover, which is usually the last printed part of any work, "*May, 1882*," appears in large letters!

THE "CLUSTER FLY."—At a recent meeting of the Biological Society of Washington, D. C., Professor W. H. Dall exhibited living specimens of a fly which has proved to be quite a nuisance in the country houses near Geneva, N. Y. From a letter received by him from a relative living at that place, we quote the following extracts, which will explain the nature of this nuisance: "It is probably thirty years since the flies appeared in our neighborhood. I remember little about it except that they were at once a terror to all neat housekeepers, and from their peculiar habits a constant surprise. People soon learned to look for them everywhere: in beds, in pillow-slips, under table covers, behind pictures, in wardrobes nestled in bonnets and hats, under the edge of carpets, etc. A window casing solidly nailed on will, when removed, show a solid line of them from top to bottom. They like new houses, but are also found swarming in old unused buildings. Best of all they like a clean dark chamber seldom used, and if not disturbed form in large clusters about the ceilings. Under buildings, between earth and floor, they are often found in incredible numbers. About the 1st of April, or as soon as the sun shines warm in the early spring, they come out of the grass and fly up to the sunny side of the houses."

Dr. Frank Baker stated that he knew of the congregating of this fly in houses in Maine in the same manner as described by Professor Dall. One of their peculiarities, he said, was to crawl

and work into woolen stuff and yarn, apparently trying to suck up and extract the oily or fatty matter contained therein.

The flies received by these gentlemen were referred to us for determination. They proved to be the *Musca rudis* Fabricius, a species common to Europe and America, and redescribed by Harris (Entom. Corresp. of T. W. Harris, p. 336) as *Musca familiaris*. *Musca obscura* Fabr., and *Pollenia autumnalis* R-D., are also synonyms. Robineau Desvoidy, in dividing up the old genus Musca made *rudis* the type of his genus *Pollenia*, and enumerated about forty species. Although most of these species are very numerous in individuals, nothing definite is known in regard to their larval habits and development, though the last named author remarks that the eggs are laid in decomposing animal and vegetable matter.

The general habit of the species of entering dwelling houses in the fall of the year has been noted by both Harris and Robineau-Desvoidy, but we recall nothing in print that records their being such a nuisance to housekeepers. Enormous swarms of certain Diptera have occasionally been observed,[1] but no satisfactory explanation has so far been given for their formation. In the case of our Pollenia it seems to seek shelter in houses against the cold of winter; but the flies do not enter the houses in a single swarm as certain species of Chlorops have been observed to do; they gradually accumulate. The reasons why certain houses prove so attractive to the flies year after year, are difficult to explain. Wyenbergh (l. c.) records the swarming of *Pollenia atramentaria* and *P. vespillo* in the same building for seven successive years. His explanation that in this instance certain conditions facilitated the entrance of the flies but rendered their exit difficult, appears quite plausible.—*C. V. Riley.*

NAPHTHALINE CONES.—Mr. C. Blake, of Philadelphia, has written us to the effect that our remarks on his naphthaline cones have given him a great deal of trouble in answering letters concerning the value of our experience. We admitted the value of these cones for collections of Coleoptera and Hemiptera, and other experienced entomologists have testified to their merits for other orders. We hope, therefore, that our own preference for other repellants will deter no one from giving the cones a trial. We would add that we have never attributed to the cones the power of *causing* the greasing of cabinet specimens, but simply of *encouraging*, in a similar way as does camphor, the tendency already existing. We have found that the glazed and relaxed appearance of our Lepidoptera which followed their use, was but transient, and due, doubtless, to the first rapid evaporation of the material which is often deposited on the insects in minute crystals. Mr. Blake claims further that the cones do not stain. Our experiences

[1] Vide H. Weyenbergh's paper on Dipterous swarms in Verh. Zool.-bot. Ver., Wien, 1871, Vol. XXXI, pp. 1201–1216.

differ. We find that they not only leave an unsightly brown mark wherever they touch the paper, but that by the time they have entirely evaporated and left only a sooty residuum, there is generally discoloration of the paper in the immediate neighborhood even where there has been no contact.

Our experience would indicate that the cones destroy mites and Psoci very soon, but have little effect on Dermestidæ.

ALTERNATION OF CROPS VERSUS THE WHEAT-STALK ISOSOMA.—Professor G. H. French, of Carbondale, Ills., recently wrote us the following note: "I was in three wheat-fields yesterday, two that were in wheat last year and one in clover. The first two had about ninety-three per cent. of the stalks containing from one to three worms each; the other not more than 5 per cent. where examined —a good proof of the efficacy of the alternation of crops. The season was very favorable for the growth of the wheat, but the heads were short and not well filled at the ends."

RAVAGES OF A RARE SCOLYTID BEETLE IN THE SUGAR MAPLES OF NORTHEASTERN NEW YORK.—About the first of last August (1882) I noticed that a large percentage of the undergrowth of the sugar maple *(Acer saccharinum)* in Lewis county, Northeastern New York, seemed to be dying. The leaves drooped and withered, and finally shriveled and dried, but still clung to the branches.

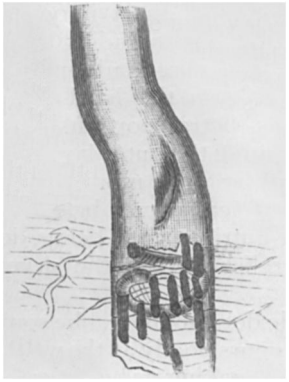
The majority of the plants affected were bushes a centimetre or two in thickness, and averaging from one to two metres in height, though a few exceeded these dimensions. On attempting to pull them up they uniformly, and almost without exception, broke off at the level of the ground, leaving the root undisturbed. A glance at the broken end sufficed to reveal the mystery, for it was perforated, both vertically and horizontally, by the tubular excavations of a little Scolytid beetle which, in most instances, was found still engaged in his work of destruction.

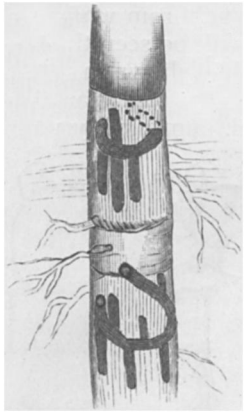
At this time the wood immediately above the part actually invaded by the insect was still sound, but a couple of months later it was generally found to be rotten. During September and October I dug up and examined a large number of apparently healthy young maples of about the size of those already mentioned, and was somewhat surprised to discover that fully ten per cent. of them were infested with the same beetles, though the excavations had not as yet been sufficiently extensive to affect the outward appearance of the bush. They must all die during the coming winter, and next spring will show that, in Lewis county alone, hundreds of thousands of young sugar maples perished from the ravages of this Scolytid during the summer of 1882.

Dr. George H. Horn, of Philadelphia, to whom I sent specimens for identification, writes me that the beetle is *Corthylus punctatissimus* Zim., and that nothing is known of its habits. I take pleasure, therefore, in contributing the present account, meagre as it is,

of its operations, and have illustrated it with a few rough sketches that are all of the natural size excepting those of the insects themselves, which are magnified about nine diameters.

The hole which constitutes the entrance to the excavation is, without exception, at or very near the surface of the ground, and is invariably beneath the layer of dead and decaying leaves that everywhere covers the soil in our northern deciduous forests. Each burrow consists of a primary, more or less horizontal, circular canal, that passes completely around the bush but does not perforate into the entrance hole, for it generally takes a slightly spiral course so that when back to the starting point it falls either a little above or a little below it—commonly the latter (see figs. 1 and 2).





FIGS. 1 and 2.—Mines of Corthylus punctatissimus.

It follows the periphery so closely that the outer layer of growing wood, separating it from the bark, does not average .25 mm. in thickness, and yet I have never known it to cut entirely through this so as to lie in contact with the bark.

FIGS. 3 and 4.—Mines of Corthylus punctatissimus.

From this primary circular excavation issue, at right angles, and

generally in both directions (up and down), a varying number of straight tubes, parallel to the axis of the plant (see figs. 1, 2 and 3). They average five or six millimetres in length and commonly terminate blindly, a mature beetle being usually found in the end of each. Sometimes, but rarely, one or more of these vertical excavations is found to extend farther and, bending at a right angle, to take a turn around the circumference of the bush, thus constituting a second horizontal circular canal from which, as from the primary one, a varying number of short vertical tubes branch off. And in very exceptional cases these excavations extend still deeper, and there may be three, or even four, more or less complete circular canals. Such an unusual state of things exists in the specimen from which figure 3 is taken.

It will be seen that with few exceptions, the most important of which is shown in figure 4, all the excavations (including both the horizontal canals and their vertical offshoots) are made in the sapwood, immediately under the bark, and not in the hard and comparatively dry central portion. This is doubtless because the outer layers of the wood are softer and more juicy and therefore more easily cut, besides containing more nutriment and being, doubtless, better relished, than the dryer interior.

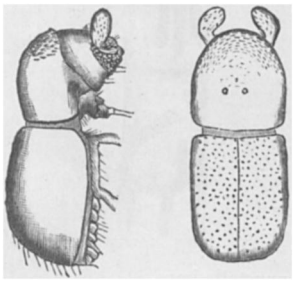


FIG. 5.–Corthylus punctatissimus.

This beetle does not bore, like some insects, but devours bodily all the wood that is removed in making its burrows. The depth of each vertical tube may be taken as an index to the length of time the animal has been at work; and the number of these tubes generally tells how many inhabit each bush, for as a general rule each individual makes but one hole, and is commonly found at the bottom of it. All of the excavations are black inside.

The beetle is sub-cylindric in outline and very small, measuring but 3.5 mm. in length. Its color is a dark chestnut-brown, some specimens being almost black. Its head is bent down under the thorax and cannot be seen from above (see fig. 5.)

Should this species become abundant and widely dispersed, it could but exercise a disastrous influence upon the maple forests of the future.—*C. Hart Merriam, M. D.*

ZOÖLOGY.

ON THE GREEN COLOR OF THE OYSTER.—In *Forest and Stream* in the issues of 25th May and 1st June last, an article by me which had previously been read before the American Fish Cultural Association, gave in the main the conclusions which I had arrived at in regard to this singular phenomenon. It is now well ascertained that *Ostrea virginiana* is affected in precisely the same